Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Alaska Communications Internet, LLC Petition for Partial Waiver of Section 15.407(a)(3) of the Commission's Rules	ET Docket No. 18-282

Reply of Alaska Communications Internet, LLC

Alaska Communications Internet, LLC ("Alaska Communications" or the "Company") hereby replies to the comments filed by GCI Communications Corp. ("GCI"), AlasConnect LLC ("AlasConnect"), and RADWIN LTD ("RADWIN") in response to the above-captioned request for waiver of Section 15.407(a)(3) of the Commission's rules, 47 C.F.R. § 15.407(a)(3).

Alaska Communications is in the process of deploying RADWIN fixed wireless broadband radio equipment operating in the U-NII-3 band, in order to provide broadband services to meet its deployment commitment accepted in connection with the Commission's Connect America Fund ("CAF"), Phase II high cost universal service support program. Those radios communicate on a point-to-multipoint basis using a series of *sequential* directional point-to-point transmissions only. As RADWIN explains, it "does not currently manufacture point-to-multipoint equipment with simultaneous transmission antennas."[1] Because Alaska Communications is requesting this waiver of Section 15.407(a)(3) in order to operate current-model RADWIN radios that employ sequential directional point-to-point transmissions in a manner consistent with the Commission's rule that govern other point-to-point use of the U-NII-3 band, we take this opportunity to clarify that a narrower waiver of the rule only as it applies to such sequential directional transmissions would fully meet Alaska Communications' needs.

[1] RADWIN Comments at 3.

A. The Waiver Would Address Special Circumstances Surrounding Broadband Deployment in Alaska and Serve the Public Interest

The Commission has made it clear its deep and abiding commitment to closing the digital divide by expanding broadband availability and affordability under the CAF Phase II program and others.[2] This commitment extends to rural Alaskans, in particular, and the Commission has made substantial commitments to overcoming the unique challenges to broadband deployment in the state.[3] Alaska Communications is working diligently to make good use of that funding in smart and efficient ways that will help as many rural Alaskans as possible. To that end, the waiver proposal as submitted will enable delivery of broadband services to more Alaskans while taking advantage of new beamforming technology to reduce the likelihood of interference problems with other operators in the spectrum.

As RADWIN recognizes in its comments, this waiver will enable fast and reliable broadband service meeting or exceeding the requirements of CAF Phase II to hundreds of additional customer locations in and around Ninilchik, and in the areas surrounding Pleasant Valley, Alaska (about 30 miles east of Fairbanks), at lower cost, than would be possible without. Absent a waiver, a customer at or beyond the marginal coverage of the fixed wireless signal (*i.e.,* just on the edge of the service area covered by an existing tower operating in the U-NII 3 spectrum and therefore only capable of receiving a weak, marginal signal today) would likely

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[2] *See, e.g., Connect America Fund*, WC Docket No. 10-90, Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161, 26 FCC Rcd 17663 (2011) ("*Transformation Order*"), at ¶¶ 7, 636.

[3] *See, e.g., Connect America Fund*, WC Docket No 10-90, Order, FCC 16-143, 31 FCC Rcd 12086 (2016), at ¶ 4 (discussing deployment challenges unique to Alaska and committing approximately $19.6 million annually for ten years in Connect America Fund ("CAF"), Phase II support for Alaska Communications); *Connect America Fund*, WC Docket No 10-90, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-115, 31 FCC Rcd 10139 (2016), at ¶ 47, 75 (committing up to $55.7 million annually for ten years to help Alaska's smaller, rate-of-return carriers overcome the unique challenges to broadband deployment that Alaska presents, and up to an additional $75 million annually for ten years to support wireless services).

remain unserved. Alaska Communications could not, consistent with its responsibilities to be a good steward of public CAF Phase II funds, justify the expense of building a new tower closer to this customer's location, as proposed by GCI,[4] nor could it deploy a series of individual point-to-point radios to gain the benefits of the higher effective isotropic radiated power ("EIRP") authorized under the Commission's rules.

Indeed, compared to these alternatives, this waiver is likely to mitigate interference risks. Absent a waiver, the greater number of base stations operating in the area could increase the potential for interference with other users of the spectrum, because additional base stations on additional towers would multiply the number of unique U-NII-3 signals propagating in an area. Furthermore, those signals would be transmitted from a larger number of different locations and in a variety of directions, more closely approximating the wide-beam omnidirectional broadcast environment to which GCI objects. Even at the lower EIRP, such operation would be more likely to cause interference problems due to the closer proximity of the base station radios, and the increased number of distinct signals present at the customer location. As RADWIN explained in the context of its own Petition for Rulemaking, "unlike legacy point-to-multipoint systems, devices using sequential transmissions do not operate constantly in a specific direction and do not transmit in a broad beam pattern," meaning that this waiver would "likely result in a reduction in the overall noise floor in the area around the transmitter and more importantly, a reduced risk of interference to all nearby co-channel operations."[5]

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[4] GCI Comments at 6.

[5] *See RADWIN LTD. Amendment of Part 15 of the Commission's Rules to Advance Improved Broadband Services in the U-NII-1 and U-NII-3 Bands*, RM-11812, Reply of RADWIN LTD. (filed Aug. 14, 2018), at 10 ("*RADWIN Reply*").

Rather, Alaska Communications seeks a more efficient option that reduces costs *and* interference risks in the unique operating environment of rural Alaska. Alaska Communications has proposed this waiver to take advantage of the capability of the RADWIN radios to mimic a series of individual point-to-point radios through sequentially transmitted directional beams, without the inefficiency of deploying an individual point-to-point radio to serve every customer. Although these radios will emit beams in multiple directions, they only emit one beam at a time, *only in the direction of the customer* and *only during the time-slice* assigned to that customer. This waiver therefore creates less potential interference and makes better use of the spectrum than other solutions. It also ensures the CAF II funding the Commission is providing to Alaska Communications is used efficiently to help as many rural Alaskans as possible.

B. None of the Comments Justify Denial of this Waiver

With a narrower waiver in mind that would apply only to sequential directional transmissions, neither the objections of AlasConnect nor of GCI are well-founded. *First*, AlasConnect's concern that Alaska Communications fixed wireless operations could cause interference to their own unlicensed operations in Fairbanks is unrelated to this waiver request. In 2014, the Commission permitted the use of high-gain antennas for directional point-to-point transmissions, accepting the arguments of individual wireless Internet service providers ("WISPs") and the Wireless Internet Service Providers Association ("WISPA") that the use of high-gain antennas in the U-NII-3 band is essential to facilitate cost-effective deployment of broadband services in rural and high-cost areas.[6] In doing so, the Commission observed that the

[6] *See, e.g., Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 13-49, First Report and Order, FCC 14-30, 29 FCC Rcd 4127 (2014), at ¶ 106 ("Fastback Networks opposes the proposed changes to the antenna gain requirements because the current requirements in place today have permitted WISPs around the country to provide broadband services to under and unserved rural and other remote areas."); ¶ 107 ("Exalt Communications Inc. (Exalt) and others believe that a higher-gain antenna has a

use of high-gain antennas with point-to-point operations would "allow service providers to deploy cost-effective wireless links in what would otherwise be considered high cost areas" with minimal risk because "[t]here were no harmful interference cases caused by compliant high-gain point-to-point systems" and "we believe that our enhanced security requirements will ensure that these point-to-point systems operate in modes consistent with their certification, and therefore there should be no increase in harmful interference."[7]

In the unlicensed U-NII-3 band, neither AlasConnect nor any other user can claim licensed protection from interference. When harmful interference does occur, users of the band customarily work cooperatively to resolve it, so that all parties can continue to operate. Should harmful interference arise between Alaska Communications and any other user of this band, including AlasConnect, Alaska Communications is committed to resolving any such instances of interference cooperatively in this way. Indeed, Alaska Communications agrees with GCI that it is important to "operate[] in unison with competitors in the U-NII-3 band," and believes it can do so, even when operating at the higher EIRP levels sought by this waiver.

In any event, such interference concerns are unrelated to this waiver. To the extent that the interference posited by AlasConnect is a concern in this band, it could arise even if Alaska Communications were operating at the lower EIRP level authorized for point-to-multipoint transmissions under Section 15.407(a)(3). If Alaska Communications were to co-locate its equipment on the same towers used by AlasConnect, or in close proximity, interference could

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reduced off-axis interference pattern and has volumetrically the equivalent interference to neighboring devices with respect to overall spectral density."); ¶ 108 ("WISPA believes that nearly every WISP, especially those that serve remote and rural areas where other broadband services would otherwise not be available, utilize point-to-point ISM band equipment with antenna gains higher than 23 dBi, as permitted under Section 15.247.").

[7] *Id.* at ¶ 112.

become a greater concern, simply due to proximity, even at lower EIRP levels that comply with the rule. But, here, the towers on which Alaska Communications proposes to deploy RADWIN base station radios, near Pleasant Valley, are about 30 miles away, in a straight line, from central Fairbanks, and so likely well clear of AlasConnect's equipment. Given the high degree of signal attenuation from conifer forests in the area, AlasConnect's signal in Fairbanks is likely to be far stronger than that of Alaska Communications, and arrive to the AlasConnect customer from a very different direction, minimizing any interference concerns. And, of course, AlasConnect is free to seek its own similar waiver to operate at a greater power level, should the need arise.

Second, with this waiver request limited to point-to-multipoint transmissions effected only through a series of *sequential, not simultaneous*, directional point-to-point transmissions, GCI's concerns are equally misplaced. As discussed above, sequential directional transmissions have low potential to cause harmful interference, such that GCI's indoor wi-fi "Turbozone" routers, which operate across the entire U-NII-3 band, are unlikely to be materially affected. Because Alaska Communications' fixed wireless service will use highly focused directional beams, it is unlikely that more than a small part of the U-NII-3 spectrum would even conceivably be affected at any individual GCI customer location. In addition, being indoor devices, GCI's "Turbozone" routers will be shielded from such transmissions by the walls of the structure in which they operate. GCI's comments are largely a matter of conjecture; they describe no actual cases of interference to "Turbozone" routers, despite the current nearby presence of AlasConnect's fixed wireless operations in the U-NII-3 band. As with AlasConnect, however, Alaska Communications is willing to work cooperatively with GCI to resolve any harmful interference that arises as a result of this waiver, however unlikely.

Although GCI cites "a myriad of concerns" raised by other commenters in response to the RADWIN Petition for Rulemaking, none are relevant here. Rather those concerns relate to the use of the U-NII-1 band, or future RADWIN radios that may employ antennas that transmit multiple beams *simultaneously*.[8] Alaska Communications agrees with RADWIN that the use of high-gain antennas with radios that transmit multiple directional beams simultaneously may raise different issues from those associated with the sequential directional transmissions used by current RADWIN radios.[9] But, this waiver implicates neither of those use cases, and the Commission need not grapple with the issues they may raise here.

For the same reasons, and contrary to the assertion of GCI, Alaska Communications is not seeking to establish a *de facto* license to operate in this band. GCI again echoes concerns that radios that transmit multiple *simultaneous* directional beams create a greater degree of interference risk than those that employ *sequential* point-to-point beams. But, Alaska Communications seeks only to operate its current RADWIN radios, which use sequential directional beams, pursuant to this waiver request.

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[8] GCI Comments at 2 (citing comments filed in response to the RADWIN Petition for Rulemaking, RM-11812, by AARL - the National Association for Amateur Radio, Globalstar, Inc., NCTA-The Internet & Television Association, and National Public Safety Telecommunications Council ("NPSTC")). Globalstar's comments in that proceeding focused on the U-NII-1 band, which is not relevant to this waiver. The remaining comments cited by GCI in that proceeding focus on the simultaneous directional transmission issue, *e.g.*, AARL at 1, 7; NCTA at 2-4; NPSTC at 4. Even despite this concern, NCTA, at 4, recognizes the potential benefits of the rule change for "enhancing broadband access in rural communities" and suggests that the Commission consider it in that context.

[9] *See RADWIN Reply* at 7.

Conclusion

For the foregoing reasons, Alaska Communications urges the Commission to reject the objections of GCI and AlasConnect, and grant a partial waiver of Section 15.407(a)(3) of its rules, 47 C.F.R. § 15.407(a)(3), as requested in the Alaska Communications petition filed in this proceeding.

Respectfully submitted,

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